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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,923	12/10/2003	Jeen Hur	51876P436	8603

8791 7590 08/08/2007

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EXAMINER	
KASRAIAN, ALLAHYAR	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
08/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/733,923	HUR ET AL.	
	Examiner	Art Unit	
	Allahyar Kasraian	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/10/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement submitted on December 10, 2003 has been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a

later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over **IEEE ("Qos Based Scheduling for Incorporating Variable Rate Coded Voice in BLUETOOTH") By Chawla, Saran, and Singh (hereafter Chawla)** in view of **Ward et al. (U.S. Patent # 5,701,294)**.

Consider **claims 1**, Chawla et al. clearly show and disclose a method for dynamically and asymmetrically managing synchronous connection-oriented (SCO) links in a Bluetooth system (see FIG. 2 and lines 1-2 of the fourth paragraph in Section II where it says, "The Bluetooth protocol stack is different for the *ACL* and *SCO* links." Also lines 5-7 of Section VI. Where it says, "if we use *SCO* links with adaptive T_{SCO} rather than standard *SCO* links in Bluetooth." The adaptive T_{SCO} is considered as a way to dynamically and asymmetrically manage SCO links)

Chawla also disclose the said method comprising:

(b) dynamically changing type of each SCO link (see FIG. 2 and description in section A, Adaptive T_{SCO}, lines 2-4 of the first paragraph, where it says, "Slots are allocated to SCO links periodically. The time period slot allocation is known as T_{SCO}..." and note to more details in line 1-4 of the third paragraph where it says, "In the Adaptive T_{SCO} scheme, we dynamically adjust T_{SCO} depending on the activity of the call. Accordingly, T_{SCO} toggles between two distinct values with change in activity of voice." Therefore, it is assumed that adaptive T_{SCO} assumes to be related to the change of the SCO links.)

However, Chawla fail to disclose (a) analyzing a quality of communication channels in the Bluetooth system; and then (b) dynamically changing type of each SCO link according to the channel analysis.

In the same field of endeavor, Ward et al. clearly show a method to

(a) analyzing a quality of communication channels in the Bluetooth system (see FIG. 3 and lines 9-11 of column 4 where it says, "The method begins by monitoring and measuring conditions on each of the radio channels, and estimating current radio channel quality for each of the radio channels."); and

(b) dynamically changing time slots according to the channel analysis (as indicated in lines 11-13 of paragraph 4, where its says, "The method then dynamically changes the bit rates and allocates time slots based upon the estimated radio channel quality...").

Therefore, it would have been obvious to the person of ordinary skills in the art at the time the invention was made to incorporate the channel quality estimation and dynamically change the allocated time slots based on channel quality as taught by Ward et al. instead of activity of the call for allocating the adaptive timeslots (T_{SCO}) disclosed by Chawla for purpose of dedicating appropriate time slot of SCO links based on Qos. The proper motivation is to allocate different rate of time slots based on condition of radio channels.

Consider **claim 2**, Chawla as modified by Ward et al. disclosed the claimed invention **as applied to claim 1 above**, and in addition Ward et al. disclose said step (b) includes the steps of:

(b1) detecting a first channel on which interference is larger than other channel (see FIG. 4 and lines 11-13 of column 6 as indication of measuring the interference, or CI/I carrier-to-interference ratio, line 17-19 of column 6 and indication of three combination type with different C/I and voice quality, and lines 24-27 of column 6 where as indication of the worst interference, "Combination type C... Therefore, C/I decreases, voice quality under combination type C deteriorate very slowly..."); and

(b2) allocating to the first channel a different type of SCO link from SCO links allocated to the other(s) channels (with considering each type of combination A, B or C as different SCO links, it is clearly stated with regards to channel interference the system can select appropriate a voice quality type with

could be a link type, as indicated in lines 56-60 of column 6 where it says, "The system dynamically responds to the measures C/I by selecting whichever of the combination types A, B, or gives the maximum voice quality for the required robustness at the measures C/I level.").

Consider **claim 3**, Chawla as modified by Ward et al. disclosed the claimed invention **as applied to claim 1 above**, and in addition Chawla inherently taught the steps of:

a first SCO link using HV1 packet having a packet transmission interval of 6 slots; a second SCO link using HV2 packet having a packet transmission interval of 6 slots;

and a third SCO link using HV2 packet having a packet transmission interval of 12 slots, wherein kinds of modified SCO links are not limited to the above SCO links. (as indicated in lines 7-10 of the last paragraph of section A. Adaptive T_{SCO}, "we use the values 6 and 12 slots for T_{SCO}, in order to make minimal change to standard, which currently specifies $T_{SCO} = 6$." Therefore, it is concluded that the Chawla was able to change the T_{SCO} for each standard HV1, HV2 or even HV3 to increase the time slots of each standards.)

Claim 4 is rejected for the same reason(s) as set forth in **claim 1**; however, **claim 4** computer programs to be implemented on a computer readable recording medium.

It would have been obvious to one of ordinary skills in the art at the time the invention was made to implement the method shown by Chawla as modified by Ward et al. by computer programs that could be implemented and run by a computer with a microprocessor, and store the computer program on a computer readable recording medium. The proper motivation is to use firmware to implement the control SCO link types, thereby enabling the process to run by a microprocessor.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.
    a. Schmidl et al. (U.S. Patent # 6,965,590 B1) disclose Dynamic salve selection in frequency hopping wireless communication.
    b. You et al. (U.S. Patent # 7,079,516 B2) disclose Adaptive frequency hopping apparatus in wireless personal area network system.
    c. Goodings et al. (U.S. Patent Application Publication # 2003/0002473 A1) disclose Enhanced cordless telephone platform using BLUETOOTH technology.

6. Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

    Commissioner for Patents
    P.O. Box 1450

Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Allahyar Kasraian whose telephone number is (571) 270-1772. The Examiner can normally be reached on Monday-Thursday from 8:00 a.m. to 5:00 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Allahyar Kasraian
A.K./ak

August, 03, 2007

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER